

Sheet # 5

Chen
Crows Foot > (E-R Diagram)

(Entity Relational diagram)

- * It describes the relationships among the stored data.
- * The E-R model contains the following components:

Entity: represents real world objects which data can be collected. (ex: CUSTOMER, PRODUCTS, ...)

طريقة
(Chen)
method

Entity

مثال لهذا الشكل وتكتب الاسم
بداخلها بحروف capital

Attribute: are the characteristics that define an entity
(ex: Name, size, ID, ...)

(Chen)
method



هذا المظهرين
PK

مثال لهذا الشكل
وترتبط بخط
مع الـ entity

* **Attributes** are categorized into **Simple** and **Composite**.
Simple: are the attributes that cannot be divided further.
Composite: are the attributes that can be divided into smaller parts.
(address → No. of street, street name, country)

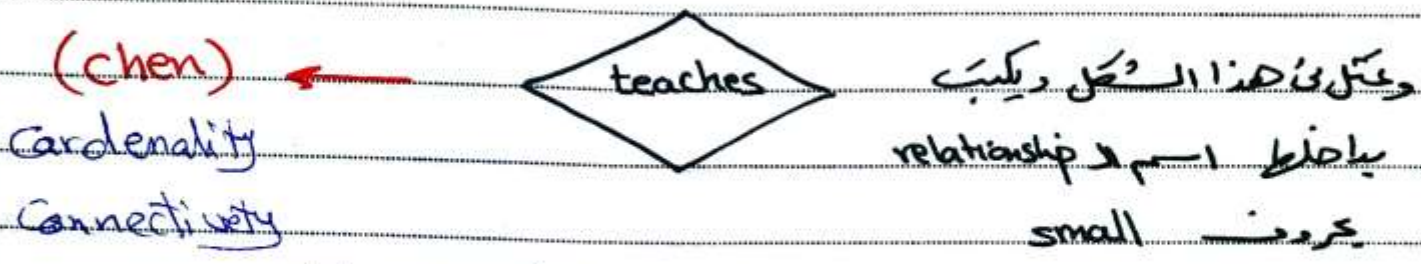
* **Primary Key**: attribute that uniquely identifies an entity.
(Chen) method: attribute that is underlined and has a small square at the end.
attribute that is underlined and has a small square at the end.
دائماً ما يكون PK attribute
والمثال وضع خط تحتهم جميعاً

Simple — ○

Composite — ○—○—○

②

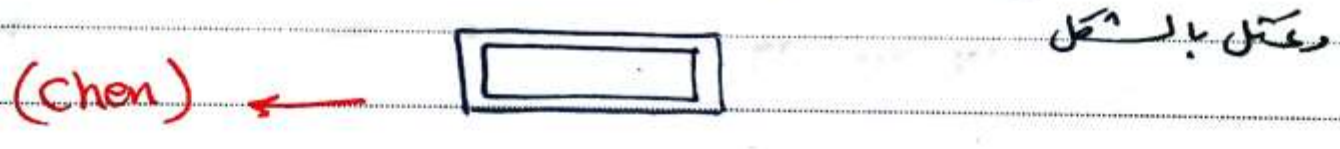
Relationship: is the relationship between entities
(ex: PROFESSOR and CLASS $\rightarrow$ teaches)



$\rightarrow$ a relationship between two or more entity can exist if they have at least one common data element among them.

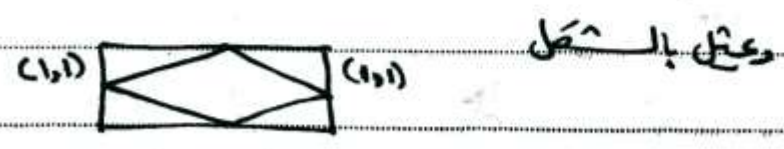
entity $\rightarrow$ نوع
relationships types $\rightarrow$ أنواع
1:1, 1:M, M:N

Weak entity: its primary key is partially or wholly derived from the parent entity



$\rightarrow$ it's existence dependent on another entity, it cannot exist without the entity with which it has a relationship

Composite entity: is known as a bridge entity is used to transform M:N relationships into a set of (1:M) relationships.



its PK consists of the combination of PKs from entities it connects.

③

* يوجد طريقتان لتمثيل ال ERD وهما :

Crow's foot

Chen

* هي طريقة أخرى لتمثيل ال ERD

هي الطريقة ال default

وسميت بهذا الاسم لأنه عند

عند طلب رسم ERD

الغالبية منه (many) بين ال entity

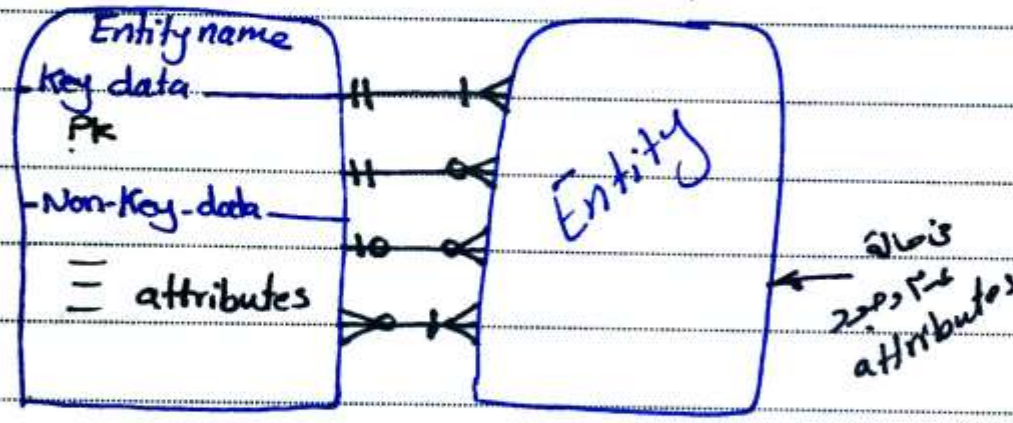
ويستعمل نمط ال default

وال relationship يضع على الخط

ال السابقة.

وهو ما يسميه (وجه الغراب)

* كل ال Entity كالتالي :



* لا يوجد شكل فريد لل relationship

ولكن يجب أن يكون بالخطوط بين ال

Entities وتسمى ال relationship بالخط

1:1

0:1

1:M

0:M

* وإذا كان ال Cardinality على كل طرف من الطرفين

ال entity على وجههم بأقنعة الأكر من كلا

ال طرفين ليصبح ال entity

1:1

0:1

1:M

0:M

* The connectivity of a relationship describes the mapping of associated entity instances in the relationships.

There are three basic types of connectivity.

1) one-to-one relationship

2) one-to-many

3) many-to-many

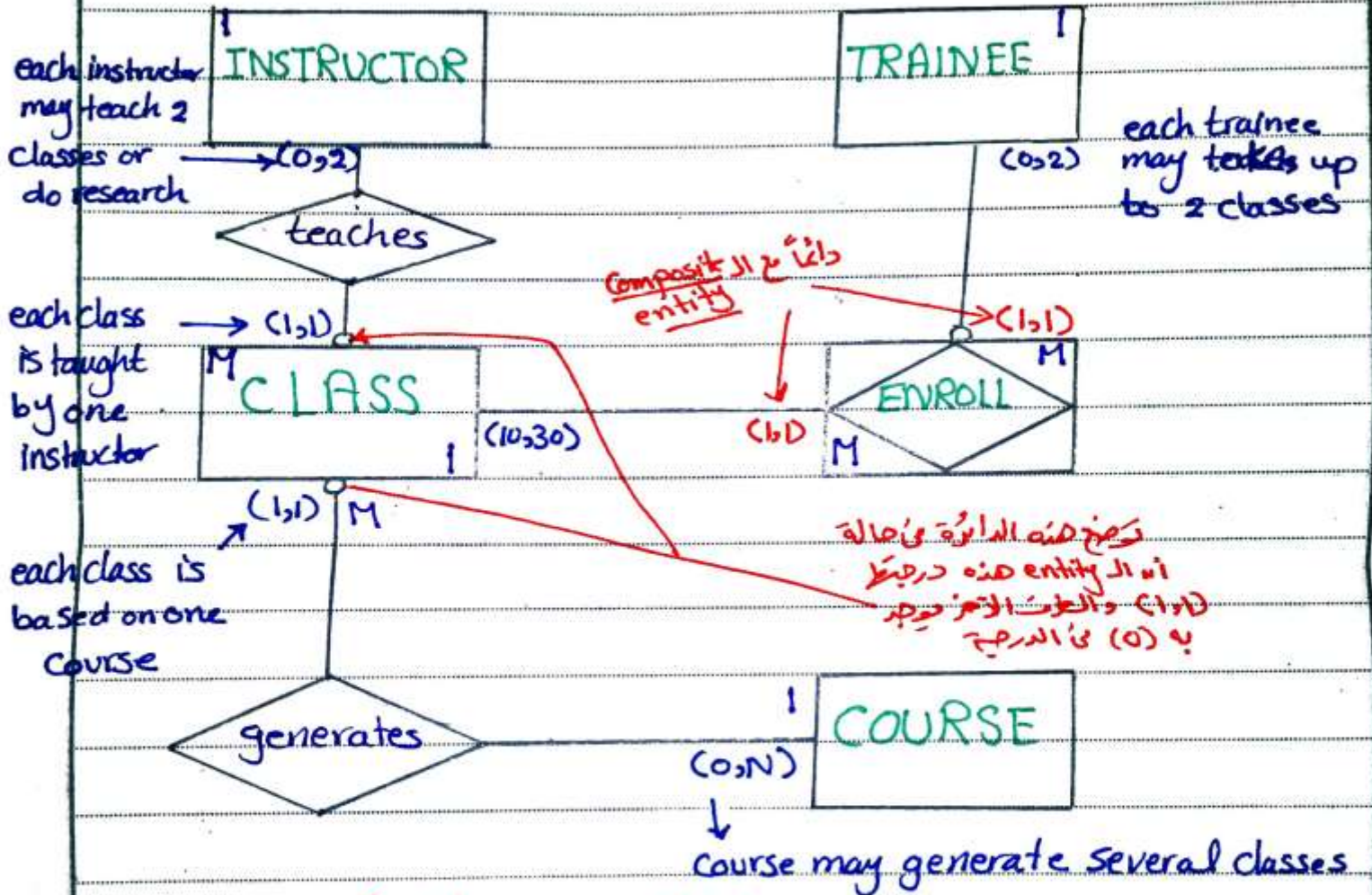
many = 2 or 1 or ∞

* The cardinality of a relationship is the actual number of related occurrences for each of the two entities.

$(1, n)$ convert $(1, \underline{30})$

Q: [1] (a) Draw E-R diagram:

(b) Describe the relationship (Connectivity, Cardinality..)



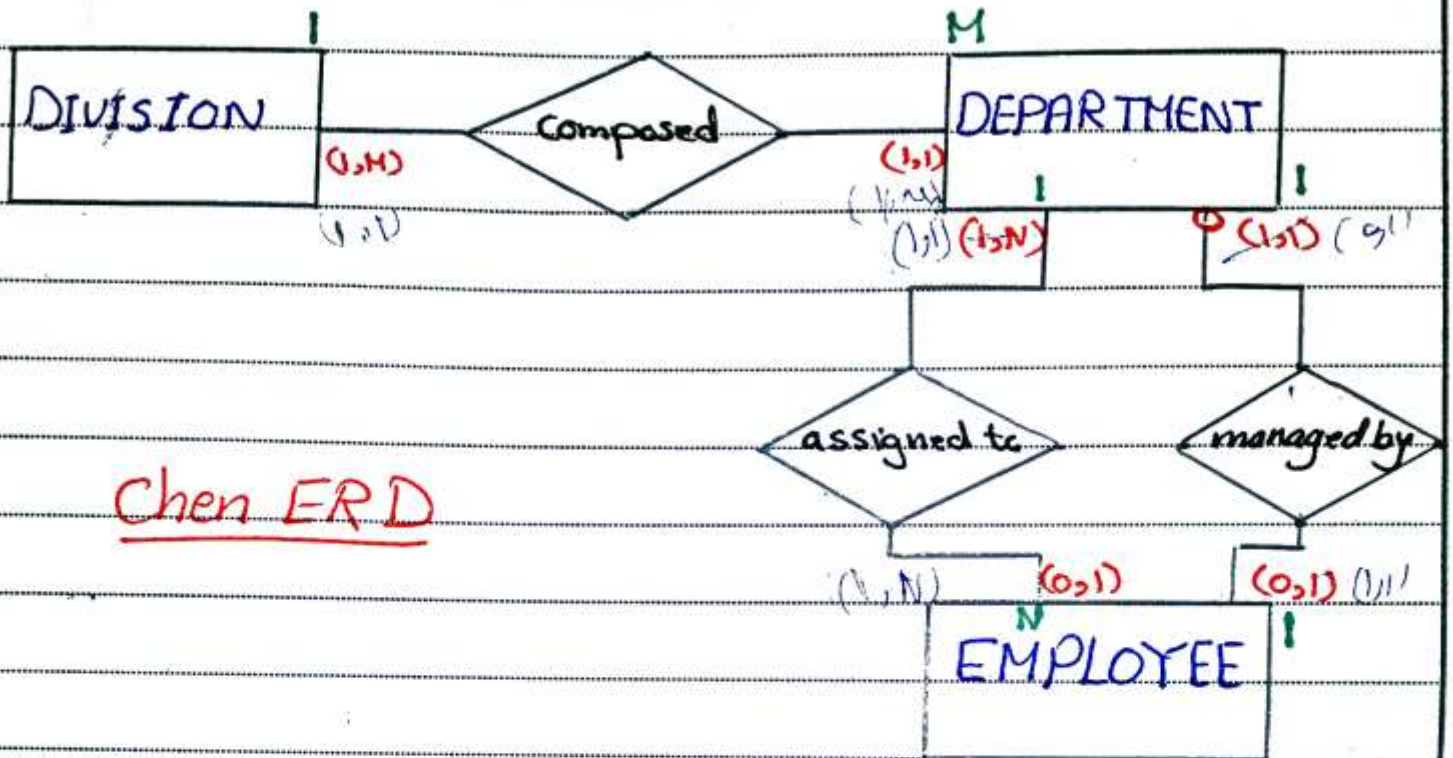
(Chen model)

OR ER diagram

Q: 2

5

(a)



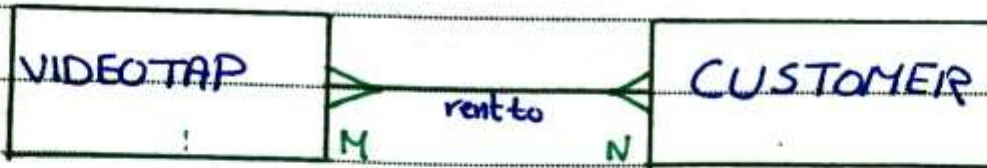
Chen ERD



Crow's foot model

(b)

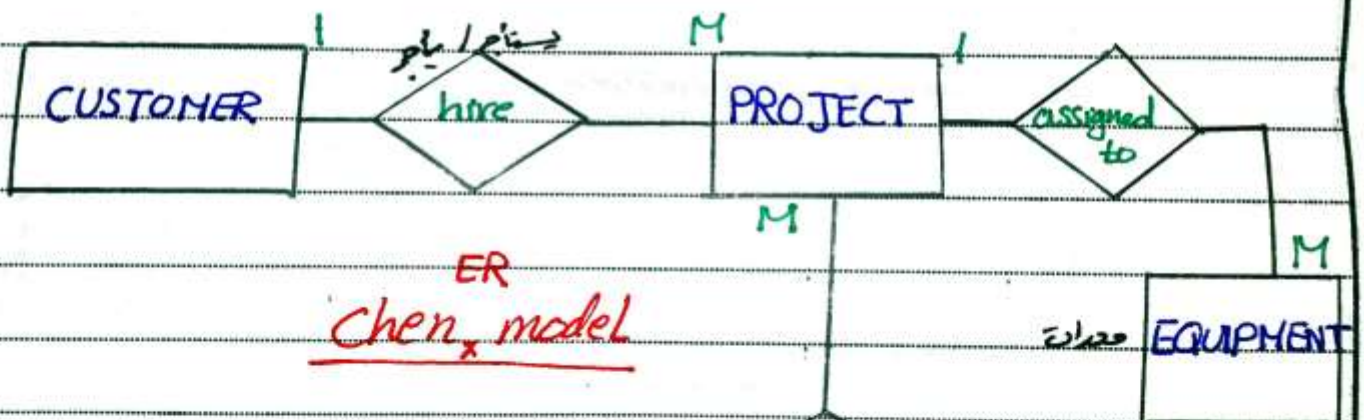
⑥



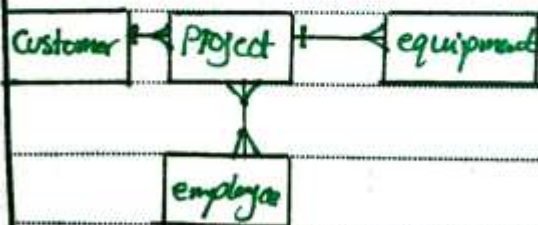
(c)



Q: [3]



ER
Chen model

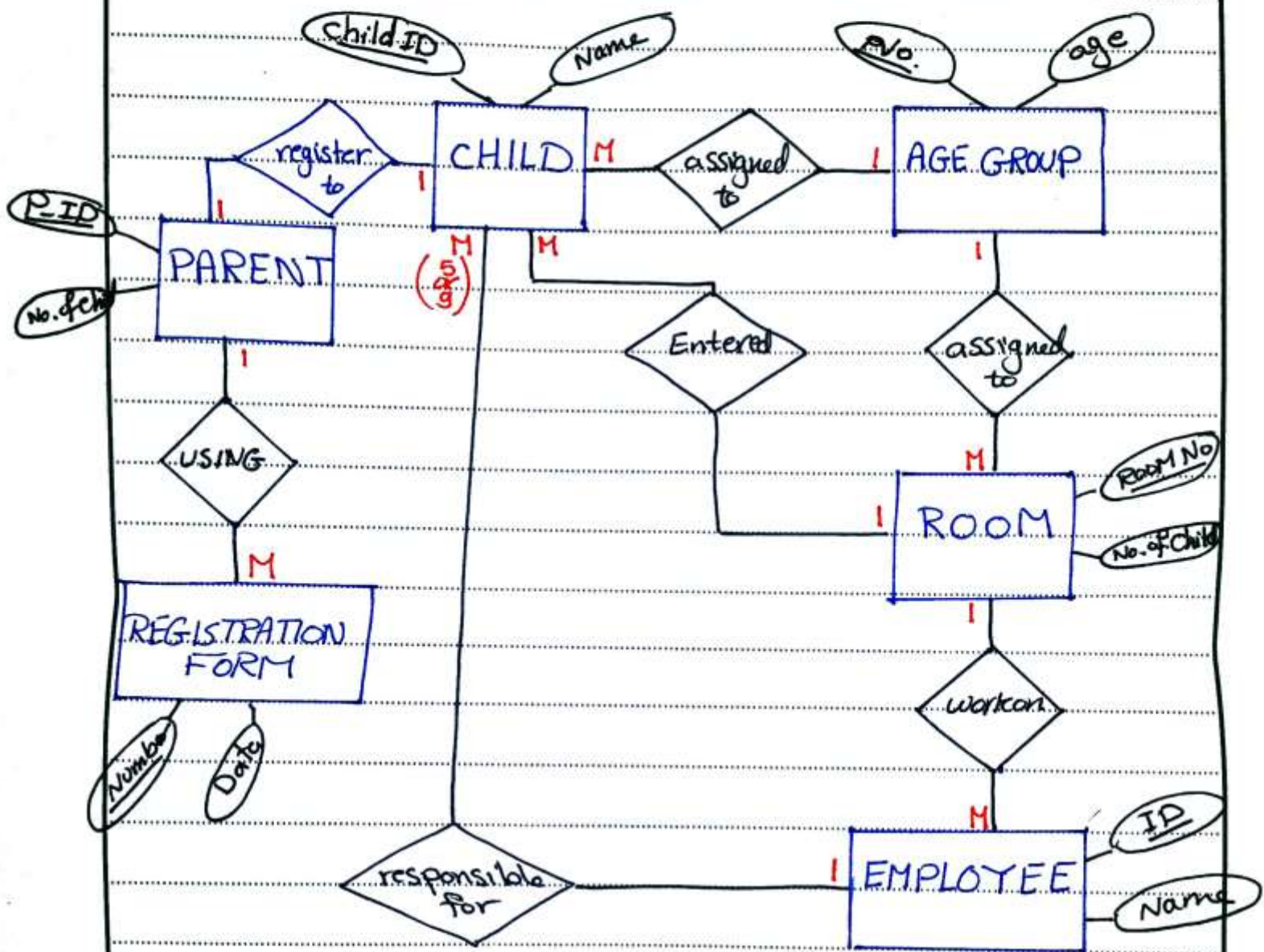


Crow's foot model

Q: 5

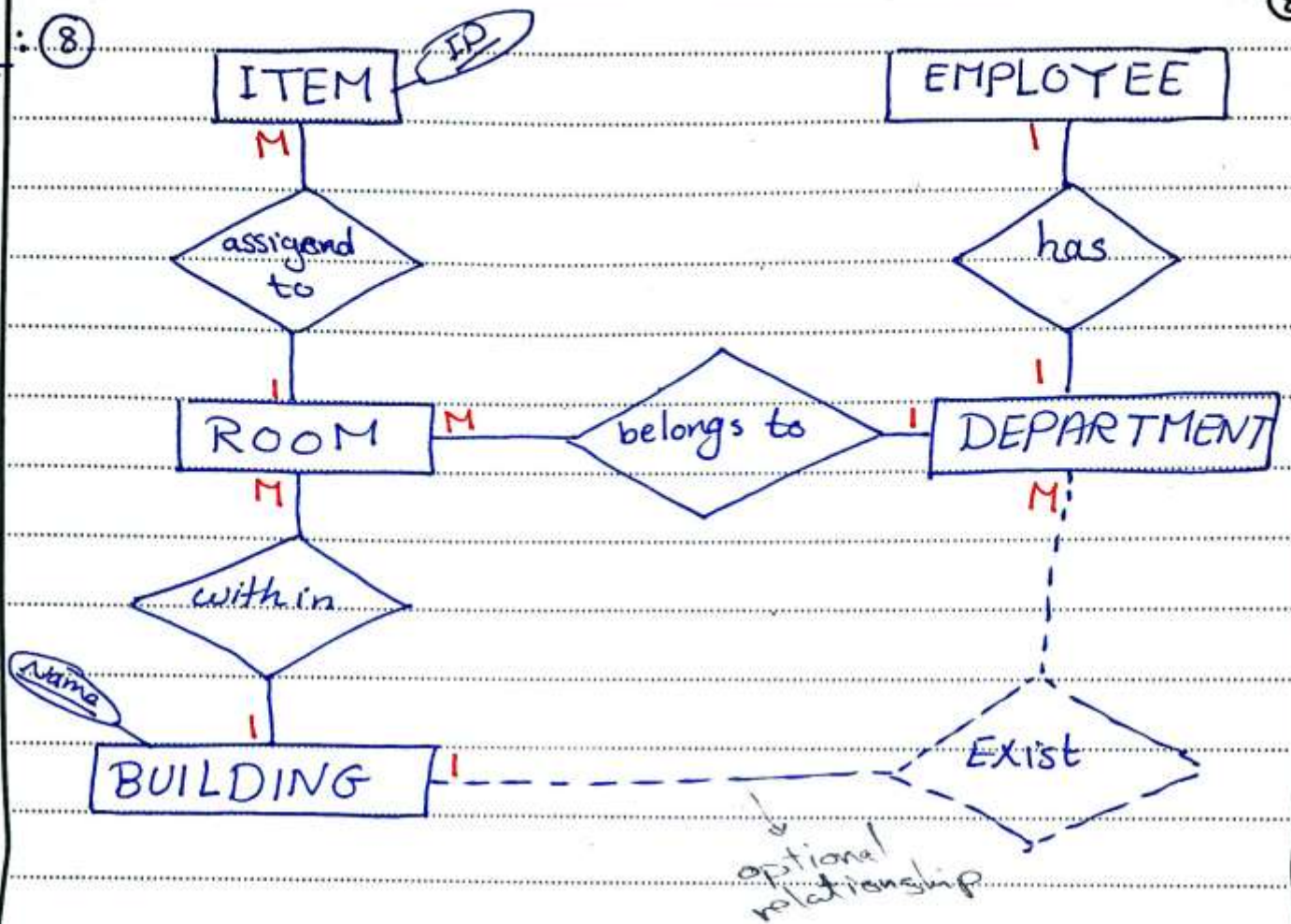
Patty's Daycare Center

7



Q: ⑧

8



Q: ⑪

